SUMMARY

The Environmental Restoration (ER) Work Breakdown Structure (WBS), Section 1.6, consists of the following: WBS 1.6.1, Remedial Action [which includes Project Baseline Summaries (PBS) ER01 - 100 Area Source Remedial Action, PBS ER02 - 200 Area Source Remedial Action, PBS ER03 - 300 Area Source Remedial Action, and PBS ER08 - Groundwater Management]; WBS 1.6.2, Decontamination and Decommissioning [which includes PBS ER05 - Surveillance and Maintenance, PBS ER06 – Decommissioning Projects, and ER09 - N Area Deactivation]; WBS 1.6.3, PBS ER10 - Program Management and Support; WBS 1.6.4, PBS ER07 - Long-term Surveillance and Maintenance; and WBS 1.6.6, PBS ER04 - Environmental Restoration Disposal Facility (ERDF).

Good progress was made in Environmental Restoration (ER) activities during February. Remediation work proceeded according to schedule at the B/C, D, DR, and 300 Areas. Overall soil excavation activities that are being conducted are on schedule in the 100 Areas. Excavation is behind schedule in the 300 Area however, which is due primarily to the discovery of additional plumes at the North Process Pond excavation site. Full recovery is expected in the next several months. Site mobilization for commencement of remediation of the 100 H Area is under way. H Area excavation is scheduled to start in March. Three of the 19 waste sites planned for remediation in fiscal year 1999 (FY99) were completed, all ahead of schedule. The Environmental Restoration Disposal Facility (ERDF) expansion is proceeding on schedule.

The Groundwater/Vadose Zone (GW/VZ) Integration Project draft documents (*Baseline, Long Range Plan,* and *Project Specification*) are out for review until March 12. The System Assessment Capability (SAC) team is working with regulators, stakeholders, and the Tribal Nations to develop an approach that will be taken in the initial assessment. Five pump and treat systems are operating. The vapor extraction unit is currently in standby (until April). All pump and treat units operated at or above planned availability levels for the month. The *Hanford Site Groundwater Monitoring Report for Fiscal Year 1998* was completed. This report satisfies the annual reporting requirements for *Resource Conservation and Recovery Act* (RCRA) and *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) long-term monitoring, as well as Atomic Energy Act (AEA) groundwater monitoring.

Decommissioning work at the F and DR Reactor Interim Safe Storage (ISS) Projects is proceeding several weeks ahead of schedule. Decommissioning of the 233-S Plutonium Concentration Facility remained behind schedule in February, but continued to regain prior months' schedule slippage (which was caused by unexpected hazard reductions). Field activities were initiated at the 108-F Biology Laboratory demolition project during this period.

Electrical upgrades for the 221-U canyon crane began this month. The upgrades were initiated as a result of a National Electric Code (NEC) inspection. Field work stabilization of the plutonium/uranium extraction (PUREX) contaminated area was completed, and the final report for the TC-4 waste site was issued.

A presentation was made to the regulators on the Environmental Restoration Contractor (ERC) Chemical Management System. A site tour was also conducted. ER Project personnel

coordinated a public workshop on 100 Area clean up activities. Approximately 100 people attended the workshop.

All seven *Hanford Federal Facility Agreement and Consent Order* (*Tri-Party Agreement*) milestones planned for the FY99 (to-date) were accomplished ahead of schedule. One additional "commitment" milestone was also completed ahead of schedule. There are 13 *Tri-Party Agreement* milestones planned for FY99. Two milestones are being re-scheduled due to scope increases at several waste sites.

There were no lost time injuries during February.

ACCOMPLISHMENTS

Remedial Action and Waste Disposal Project (PBS ER01, ER02, ER03, ER04)

Remediation work continued at the B/C, D, DR, and 300 Areas. Overall, soil excavation activities are proceeding on schedule in the 100 Areas. Soil excavation is behind schedule in the 300 Area, due primarily to the discovery of additional plumes at the North Process Pond excavation site. Three of the 19 ER waste sites planned for remediation in FY99 were completed, all ahead of schedule. ERDF expansion activities are on schedule.

B/C Area Remediation. 732 metric tons (807 tons) of waste were excavated from the 116-B-1 trench and the 116-C-5 chromium plumes in February. These wastes were shipped to the ERDF.

69,571 metric tons (76,689 tons) of material have been removed and disposed in FY99 from the B/C sites. 79,425 metric tons (87,552 tons) were planned. Quantities are lagging behind the plan due to re-sequencing of remedial action work to higher priority (but less productive) remediation sites. Full schedule recovery is expected within the next few months. To date, 583,182 metric tons (642,852 tons) of waste (vs. 593,037 metric tons [653,715 tons] planned) have been removed from the B/C Area.

Site mobilization activities for the 100-B/C-1 and 100-BC-2 Group 3 "small sites" are essentially complete. The small sites are those cribs and trenches near the B and C Reactor buildings that received liquid wastes from reactor ancillary facilities and processes. These sites were designated among the high priority sites in the *Interim Record of Decision (IROD) for 100 Area Operable Units* that was signed in 1995. Overburden removal is in progress. Results from pre-excavation potholing indicated that a substantial increase of clean overburden could be stockpiled. This resulted in pushing back the start of excavation of contaminated soils to February 23. A total of 75 metric tons (83 tons) have been shipped to the ERDF for disposal.

D Area Remediation. Remedial action work at the D Area continued ahead of schedule. The major excavation activities occurred in the 116-D-7 retention basin and the pipeline plume north of the site. A total of 22,553 metric tons (24,861 tons) of material were excavated from this site during the month, for a total of 505,844 metric tons (557,601 tons) removed since work began in November 1996. 498,931 metric tons (549,980 tons) were planned. 100,905 metric tons

(111,229 tons) of material have been removed and disposed in FY99. The plan called for 85,827 metric tons (94,609 tons) to be removed to-date.

Excavation of the pipeline between 116-DR-9 and 116-DR-1 & 2 has been initiated, along with a plume on the north face of 116-DR-1 & 2.

The excavation of Chromium 6 (Cr^{+6}), a constituent that is a threat to the Columbia River spawning grounds, was completed on February 4 at the 116-D-7 waste site. This work included the removal of one meter of Cr^{+6} contaminated soil from previously identified areas. Analytical results indicate that contamination above cleanup standards still exists. A plan is being developed to identify the vertical extent of additional Cr+6.

ER and subcontractor personnel have completed 601 workdays (covering 861 calendar days) at this site without a lost time or recordable accident.

H Area Remediation. Subcontract design activities for 100-HR-1 Operable Unit remedial actions are in progress. Site mobilization is in progress, with move-in scheduled for March 10. The subcontractor continued submittal of design/procedure documents. Waste site excavation is scheduled to begin March 17, which is two weeks ahead of the March 31 *Tri-Party Agreement* milestone (M-16-26A).

300 Area Remediation. Remediation work continued at the North and South Process Ponds. 14,477 metric tons (15,958 tons) of excavated waste were shipped to the ERDF during February. 67,023 metric tons (73,881 tons) of material have been removed from 300-FF-1 waste sites and disposed in FY99. This is about 81% of the planned 82,442 metric tons (90,877 tons) planned to-date. Delays are due to late remediation startup at the South Process Pond (due to North Process Pond plumes); disposal of lead-contaminated soil pending a variance from the regulators that authorizes ERDF disposal; and schedule slippage with 300 Area rampup to accommodate additional 100 area plume remediation. 200,446 metric tons (220,955 tons) (vs. 215,864 metric tons [237,951 tons] planned) have been removed and disposed to-date. FY99 300 Area remediation work can be completed on schedule if no additional plumes are discovered.

The U.S. Environmental Protection Agency (EPA) approved a process that allows the lead-contaminated soil that has been stored in containers near the ERDF disposal trench to be mixed with concrete and disposed of at the ERDF. Results from the bench scale lab tests indicated that the proposed addition of 30%-by- weight cement reduces leachable lead by a factor of 280 at the point that the mixture passes the filter. Procurement of materials has been initiated and a soil/cement mixing box has been moved into position in the trench.

The 300 Area project team visited a local manufacturing plant where a plasma-arc vitrification unit is being built that will be used to process miscellaneous Hanford Site wastes. Two test units are currently operational, and are processing surrogate waste streams. This technology appears to be promising for effectively treating the uranium drums that have been unearthed at the 618-4 burial ground. This option cannot be implemented, however, until the subcontractor obtains additional operating permits.

ERDF Operation. During February, shipments totaling 38,316 metric tons (42,236 tons) of contaminated waste were transported to the ERDF from all ER Project sources. To date, 1,331,149 metric tons (1,467,348 tons) of material have been received and placed in the ERDF. This is about 1% less than the planned quantity of 1,347,658 metric tons (1,485,546 tons), which is due to the 100 B/C and 300 Area delays discussed above.

Leachate hauling to the Effluent Treatment Facility (ETF) was concluded on February 5. A total of 639,733 liters (169,000 gallons) of leachate were transported to ETF during the campaign, which began on December 31, 1998. Approximately 132,489 liters (35,000 gallons) of leachate still remained in tank #2 at the end of the campaign. These will used for leak detection in tank #1, and for upcoming acceptance tests on the new leachate pipeline system.

Leak confirmation/detection activities started in leachate tank #1 on February 8. The tank was suspected of leaking on December 21, 1998, and was taken out of service on that date. Leak testing was delayed until the advent of warmer weather. Leachate from tank #2 was incrementally introduced into tank #1 to check the outlet flange, inlet flange, floor, and floor/sidewall seam of the tank, respectively. A small leak was confirmed in leachate tank #1. Efforts to locate the leak are continuing. Subcontractor personnel are being mobilized to begin repairs.

ERDF Expansion. ERDF expansion is proceeding on schedule. Approximately 85% of the excavation of the two new cells has been completed. Hydro-seeding and mulching the side slopes of the excavated soil stockpile area has commenced.

Placement, compaction, and sample repair of the bentonite-soil admixture test fill was completed. The construction quality assurance subcontractor performed all sampling/testing of the test fill, and installed a sealed double-ring infiltrometer apparatus on top of the test fill.

The in-service test of the sidewinder container closure system started the week of February 19 and will continue for three weeks. The sidewinder, which is a gear-driven latching mechanism, will reduce the potential for repetitive motion injuries associated with opening roll-on containers at the ERDF.

GW/VZ Integration Project (PBS ER08)

Baseline/Long Range Plan/Project Specification. The draft versions of the *Baseline, Long Range Plan,* and the *Project Specification* are out for review until March 12.

Peer Review. The GW/VZ Integration Project Expert Panel meeting was held in Richland, WA, on February 1–3.

Science & Technology (S&T). The National Laboratory S&T team participated in the Expert Panel meeting on February 2. RL completed relevancy review of the Environmental Management (EM) Science Program proposals, using the GW/VZ S&T roadmap.

Project Participation. The Hanford Advisory Board (HAB) was briefed on the GW/VZ project status on February 11. The Hanford Communities Caucus, Oregon Department of Energy, and Hanford Watch of Oregon organizations were briefed on the draft *Project Specification*. The

HAB-ER committee was briefed on February 18. The Regulatory Framework Workshop convened on February 23. Bi-weekly Policy Working Group meetings were held on an ongoing basis.

System Assessment Capability. The SAC team continues to work with regulators, stakeholders, and the Tribal Nations to develop an approach that will be taken in the initial assessment. A re-planning effort is underway to respond to comments from the Expert Panel and interested parties in conjunction with the release of additional funding. In addition, work scope that was pushed out beyond FY99, due to lack of funding, will be re-scheduled for completion in FY99.

Project Management Plan (PMP). The roles and responsibilities developed at the project retreat in January were incorporated into the draft PMP this month.

Groundwater Management: Five pump and treat systems are operating. The vapor extraction unit is currently in standby until April. All pump and treat units operated at or above planned availability levels for the month.

Well Drilling, Sampling, Maintenance, and Decommissioning. A Data Quality Objective (DQO) process has been initiated for installation of FY99 RCRA monitoring wells. Well sampling continued at various locations around the Hanford Site. Numerous non-routine well maintenance activities in support of sampling were completed.

Long-Term Groundwater Monitoring. Samples were collected from 469 of 512 planned long-term monitoring wells for the year (92%).

2,743 analytical results have been received, out of 3,426 planned year-to-date (80%). The delay stems from a reduced sampling effort in December, and both laboratories fell behind in processing results. The delay is expected to be recovered in the next few months.

The *Hanford Site Groundwater Monitoring Report for Fiscal Year 1998* was completed on schedule. This report satisfies the annual reporting requirements for RCRA and CERCLA long-term monitoring, as well as AEA groundwater monitoring. Completion of this report represents a key project milestone.

The draft plan *RCRA Assessment Plan for Single-Shell Tank Waste Management Area S-SX at the Hanford Site* was completed and issued for review.

The *RCRA Quarterly Report* for July-September 1998 was completed.

Analyses of all slug tests conducted in 10 new RCRA wells was completed.

A meeting with the regulators/stakeholders was held to discuss the conceptual model (aquifer boundaries) for the consolidated Hanford Site groundwater modeling effort. Representatives from the EPA, Washington State Department of Ecology (Ecology), U.S. Geological Survey (USGS), Yakama Indian Nation, Nez Perce Tribe, State of Oregon, RL, Project Hanford Management Contractor (PHMC), Bechtel Hanford, Inc. (BHI), and Pacific Northwest National Laboratory (PNNL) were present.

A review of the *Hanford Composite Analysis* was completed.

Final peer review panel comments on the Hanford Site groundwater model were received.

Interim Action Groundwater Monitoring. Well sampling activities were ongoing, in support of interim action monitoring for the pump and treat systems. Samples were collected in groundwater operable units 100-HR-3, 100-KR-4, 200-UP-1 and 200-ZP-1. The *Annual Summary Report* for the 200-UP-1, 200-ZP-1, and 100-NR-2 pump and treat systems was issued.

200-ZP-1 Pump and Treat System. 26,275,000 liters of groundwater were processed during February, removing 100.90 kg of carbon tetrachloride. For FY99, 123,855,000 liters have been processed, with 458.32 kg of carbon tetrachloride removed. From inception to date, 738,725,000 liters have been processed.

200-ZP-2 Vapor Extraction System (VES). The 200-ZP-2 system was shut down on September 30, 1998. The system will be down during the winter months, and is scheduled to be restarted in April 1999.

N Springs Pump and Treat System. 9,048,000 liters of groundwater were processed in February, with .007 curies of strontium removed. 43,829,000 liters of groundwater have been processed for FY99 (to-date), removing .04 curies of strontium. 347,608,000 liters have been processed from inception to date.

HR-3 Pump and Treat System. 22,958,000 liters of groundwater were processed during February, with 2.082 kg of chromium removed. 102,344,000 liters have been processed for FY99 to date; 16.39 kg of chromium have been removed. 438,073,000 liters of groundwater have been processed from inception to date, with 54.914 kg of chromium removed. 596,073,000 liters have been processed to-date, including D Area transfer treatability tests before 100-HR-3 start-up.

Installation of twelve remedial design wells is scheduled to begin in early March to define the chromate plume. Design activities have been initiated for deployment of in situ REDOX manipulation in the D Area.

KR-4 Pump and Treat System. 23,599,000 liters of groundwater were processed in February, removing 3.16 kg of chromium. 114,428,000 liters have been processed to date in FY99, with 15.80 kg of chromium removed.

UP-1 Pump and Treat. 7,347,000 liters of groundwater were processed in February. 34,521,000 liters have been processed for FY99 to date. 173,644,000 liters have been transported to the ETF for processing. 310,010,000 liters have been processed from inception to date at both facilities.

200 Area Assessment. Public comments received on *the Draft B, 200 Area Remedial Investigation/Feasibility Study (RI/FS) Implementation Plan* were dispositioned. The decisional draft *Interim Hanford Prototype Barrier Treatability Test Report* was issued for review on February 5.

Decommissioning Projects (PBS ER06)

Decommissioning work at the F and DR Reactor ISS Projects is proceeding several weeks ahead of schedule. Decommissioning of the 233-S Plutonium Concentration Facility remained behind schedule in February, but progress is being made to regain prior months' schedule slippage (which was caused by unexpected hazard reductions). Field activities were initiated at the 108-F Biology Laboratory demolition project during this period.

F Reactor ISS Project:

- Lead removal activities in the F Reactor sample rooms, and for the majority of lead in the upper reactor areas, was completed. Hazardous material removal in the F Reactor fuel storage basin and transfer pit areas was also completed.

- The ISS Phase III (below grade structure) DQO process continued in February. Agency interviews and an "issues" meeting were held with the regulators.

- Project and functional groups are investigating the feasibility of disposing 108-F concrete rubble at a clear well or remedial action site. This approach could produce cost savings and achieve significant waste minimization results. The regulators have been receptive to preliminary discussions on the proposal.

- At the F and DR Reactors ISS projects, no first aid cases have occurred since December 14, 1998, and no recordable, restricted, or lost work day cases have occurred in FY99 (beginning October 1). Additionally, the project has had no radiological incidences since its inception in September 1998.

DR Reactor ISS Project:

- Demolition activities at the DR northeast reactor area began on February 8, three weeks ahead of schedule. Demolition of the fan room area was initiated on February 17.

- Electrical isolations, barrier installation, and concrete saw cutting continued as the facilities are being prepared for demolition.

- The Hanford Utilities Group (HUG) DR Reactor temporary power and light (TP&L) tie-in was completed.

108-F Biology Laboratory:

- Revisions to the 108-F Biology Laboratory hazard classification document (*Auditable Safety Analysis* [ASA]) and *Removal Design Report* (RDR) were completed. Regulator approval of the RDR was received on February 24.

- A project readiness assessment was conducted and all identified follow-up action items were closed out.

- Mobilization activities continued during this period. Power connections and re-lamping activities for the 108-F interior areas were completed.

- Field activities were initiated on February 24 with the start of housekeeping and biological cleanup.

233-S Plutonium Concentration Facility Decommissioning Project:

- A glove bag was installed and certified for hot trench demolition activities. Additional completed items included drilling and checking for liquids, checking and purging of potential combustible gas, and isolation of piping from the REDOX and 233-S facilities.

- A second glove bag was installed and certified for the load-out hood decommissioning effort. Removal of sisal craft paper and 13 Lexan panels were completed. Sample points were identified and 2 of 5 samples were completed.

- Design packages for panel removal and process cell equipment dismantlement were approved and issued. Development activities for the five major work packages that support the focused readiness assessment are in progress.

- Focused readiness assessment preparations continued in February. Key resources and support capabilities were identified, and a detailed schedule was developed for daily tracking.

Balance of Decommissioning Projects: A walk-through assessment was conducted at the 105 B Reactor museum. Items with an interpretive or educational value were tagged for retention in place.

N Area Deactivation (PBS ER09)

The N Area Deactivation Project was completed on July 23.

Surveillance/Maintenance and Transition Projects (PBS ER05)

Surveillance and Maintenance activities progressed through February. Canyon Disposition Initiative (CDI) work focused on crane repairs. Final preparations were made for B Plant transition to the ER Project in late March.

Field work stabilization of the PUREX contaminated area, and the final report for the TC-4 waste site, were completed in February.

An air monitoring plan was completed for 107-KE/KW and 107-F pipe removal. Work package preparation continued.

Radiological survey training was completed, and Phase I surveys began in support of the 200 B/C Area characterization effort.

The *Waste Control Plan*, *Sample and Analysis Plan* (SAP), and *Air Monitoring Plan* were completed for 100 Area legacy waste. The documents were submitted to the EPA for review.

Electrical upgrades on the 221-U canyon crane began in February. The upgrades were initiated as a result of an NEC inspection (in December 1998) that identified non-conformances with pre-existing codes.

The REDOX safety analysis review continued. This included a post-earthquake inspection plan, definition of critical evaluation areas, and posted sign wording.

B Plant transition procedure reviews continued in February.

Annual surveillances at the 100 N Area were completed. Deactivation activities at the 1705-N Instrument and Electrical Building and 1714-N Warehouse began. Deactivation of these facilities will reduce fire system maintenance costs.

Procurement activities were initiated to obtain subcontract support for development of the U Plant safety analysis review update.

Program Management and Support (PM&S) (PBS ER10)

The Quality, Safety, and Health organization sponsored a two-day *American Society of Safety Engineers Accident/Incident Investigation* course. The course was attended by field supervisors, safety professionals, and ER Project management.

A presentation was made to the regulators on the ERC Chemical Management System. A site tour was also conducted.

The U.S. Department of Energy (DOE), Richland Operations Office (RL) received a "complaint" from EPA relative to the Hanford Site Multi-Media Inspection that was conducted in 1998. The complaint identifies an associated penalty relative to dangerous waste management at the 200 East Area pipe yard. The complaint is being evaluated.

ER Project personnel coordinated a public workshop on 100 Area clean up on February 10. Preparations included placing an advertisement in the *Tri-City Herald*; developing and mailing a fact sheet; and coordinating the logistics for the meeting room (including audio, taping, and sign-in). Approximately 100 people attended the workshop.

The *Opportunity Assessment Report for Waste Minimization/Pollution Prevention*, BHI-01261, was issued. The report identifies three opportunities that could result in potential waste volume reduction and life cycle cost savings.

The decisional draft of DOE-RL-97-93, *Guidance for Radiological Release of DOE Real Property at* Hanford, Rev. 1. was completed.

Annual environmental regulatory reports, including the *Hazardous Chemical Inventory, Dangerous Waste, Significant Discharge, RCRA Permit Non-Compliance*, and the *Stormwater Permit Evaluation* were completed.

ER continued to meet and/or exceed all DOE and Office of Management and Budget Year 2000 stretch goals for Y2K compliance. Items completed this period included an internal verification and validation of all ERC Y2K Mission and Business Essential Systems, and preparations for an Independent Verification and Validation (IV&V) of all ERC Mission and Business Essential Systems. The ER Y2K Team is also participating on the Hanford Site Business Continuity Task Force, and is preparing for Y2K testing of all ER mission and business essential systems.

COST PERFORMANCE ($M)

	BCWP	ACWP	VARIANCE
ER	$ 53.7	$ 50.6	+$ 3.1

At the end of February, the ER Project had performed $53.7 million worth of work, for a cost of $50.6 million. This accounted for a favorable cost variance of $3.1 million (6%). The variance is attributed to performance efficiencies in 100 Area waste site remediation (resulting in lower unit rates); waste transportation underruns (due to high waste remediation volumes and mild weather); ERDF cell expansion underruns; F and DR ISS productivity underruns; and underruns in GW/VZ national laboratory costs. Cost underruns are partially offset by (1) the increased cost of the GW/VZ capability sets development, which continues to be more complex than anticipated; and (2) overruns at the 233-S facility due to a) spurious alarms; b) finding potentially combustible gases in process piping; and c) increased radiation levels.

SCHEDULE PERFORMANCE ($M)

	BCWP	BCWS	VARIANCE
ER	$ 53.7	$ 61.0	-$7.3

The ER Project is $7.3 million (13%) behind schedule through February. The variance is due primarily to the discovery of additional plumes at liquid waste sites; 300 Area remediation delays in approval to dispose of lead-contaminated soil; deferral of remediation container purchases; schedule slippage in completion of GW/VZ candidate sets and risk assessment dependency webs documents; contractual issues delayed the start of groundwater routine maintenance activities; deferral of groundwater resin purchases; and decommissioning delays at the 233-S Plutonium Concentration Facility. Recovery schedules have been implemented. Offsetting the schedule

delays are early completion of B/C Liquid waste sites, and F and DR Reactors Interim Safe Storage projects proceeding approximately two weeks ahead of schedule.

ISSUES

RCRA Compliance Well Funding. Groundwater monitoring well installation capital funds will be expended in FY99. No funds are currently available for out-years.

Strategy/Status: RL is reviewing the need for additional funding (either capital or expense) for well replacement and/or installation in FY00 through FY01.